STATE OF NEVADA

IT PROJECT OVERSIGHT COMMITTEE

PROJECT DELIVERY FRAMEWORK

DEFINITION

Version 1.0

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1. OVERVIEW

1.1. Purpose

The Project Delivery Framework Definition establishes project delivery standards for State of Nevada Information Technology (IT) projects. The purpose of the Project Delivery Framework is to provide a basic roadmap to overall project achievement affecting multiple functions, organizations, vendors, contractors, stages and timelines. It is the method to achieve the benefits the State expects from its investment in an IT project.

The Department of Information Technology (DoIT) Project Oversight Unit, in support of the IT Project Oversight Committee (ITPOC), is responsible for developing and maintaining this document. The Unit will also provide project managers with additional guidance, templates, reference material, and assistance to ensure their projects are successful. Contact information for the Project Oversight Unit is available at http://doit.nv.gov/Planning_ProjectOversight.htm or DoIT at 775-684-5800

1.2. Objectives

The objectives of the Project Delivery Framework are to:

- Reduce project risk
- Reduce costly project rework
- Establish statewide project management process standards
- Effectively manage expectations for the project at all levels
- Improve accountability of project teams and vendors
- Improve reporting and communication between impacted stakeholders
- Provide early warning to management to address critical issues
- Improve project decision-making at all levels
- Enable collection and consolidation of metrics for future project planning.
- Implement projects within the expected scope, schedule, budget, and quality constraints
- Provide guidance and tools for documentation, review, assessment, and approval of project outcomes
- Provide guidance to agencies to help them assess the agency's ability to manage State IT investments
- Provide criteria to assess whether projects should continue or if they require redefinition
- Allow the ITPOC to assess the progress and quality of projects against this standard

1.3. Abbreviations

To improve readability of this document, the Project Delivery Framework will be simply referred to as the "Framework" or "Framework Definition". Acronyms and terms are noted in the glossary.

1.4. Audience

The primary audience of this Framework Definition is the project manager, the project fiscal manager, and key members of the project management team.

The initial sections of the Framework Definition are designed to provide an overview and benefits of the Framework to project stakeholders as well as the project management teams. Project Sponsors will also benefit by reviewing the Framework.

1.5. Assumptions and Strategy

The content strategy of this Framework Definition assumes that project managers are familiar with the fundamentals of project management practices and methodologies. The focus of this document is to provide sufficient guidance on the essentials of "what" to do on projects for the State, not "how" to do it or "why" it will be done.

1.6. Stages of a Project Lifecycle

A project is a temporary endeavor to create a unique product, service or result. Temporary means that every project has a definite beginning and a definite end. Temporary does not necessarily mean short in duration. In the context of this Framework, a stage is a subdivision between the begin date and end date within project's timeline. A stage is different from a phase, which is outlined later.

The seven basic stages within each distinct project are:

- Business Justification
- Initiation
- Definition & Analysis
- Solicitation & Contracting
- Pre-Implementation
- Implementation
- Closeout

Figure 1-1 describes the staged process flow from the start through the end of the project. Figure 1-1 also demonstrates how each stage moves to the next. A go/no go decision point occurs at the end of each stage control point with the understanding that the project does not proceed to the next stage until relevant stakeholders have agreed to do so. The method of arriving at the go/no go decision may vary from project to project; however, a go decision means that the project is worthy of continuation and that risks are manageable.

The basic model as shown in Figure 1-1 applies to the project as a whole and typically spans one biennium, though some projects may span multiple biennia. The model is designed to address the needs of both Commercial-off-the-Shelf (COTS) and internal development project endeavors. It is understood that project stages may be interactive, take a phased approach, or may overlap to some degree; however, what this model ensures is that they take place and, if not, there is a documented reason.

1.7. Project Phases

Many State agencies find the need to administratively divide a project into phases that comprise an "overall" multi-phased project. These phases may run in serial sequence, overlapping concurrently, or in parallel. In the end, the combined phases are meant to realize the expected completed "overall" project outcome.

Each phase is project managed, overseen, and reported on as separate and distinct project from the other phases. Each phase may use one, some, or all of the stages of a project lifecycle.

Figure 1-2 describes an example of a project with 4 separate phases. It also shows the relationship between project stages and project phases.

Figure 1 - 1

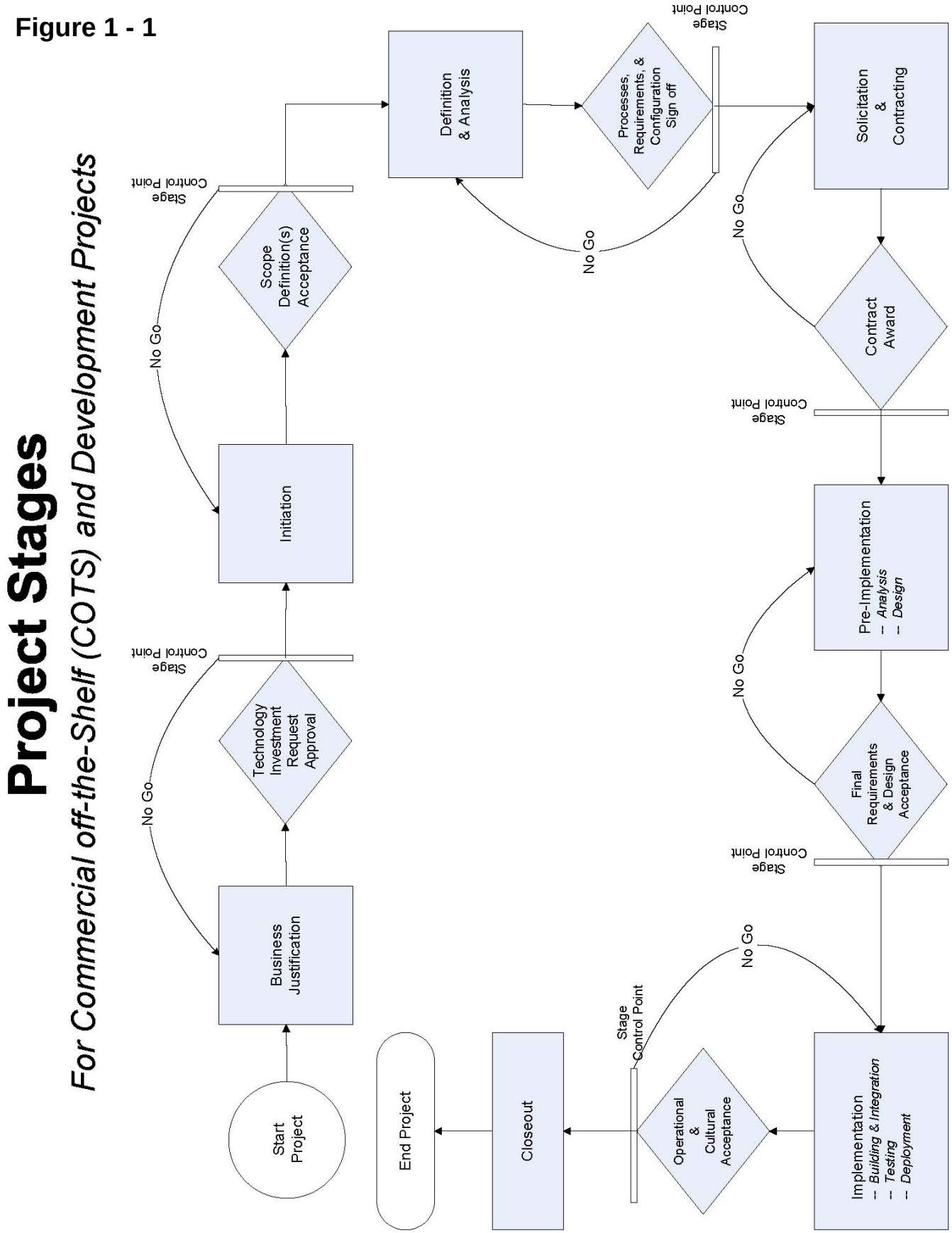
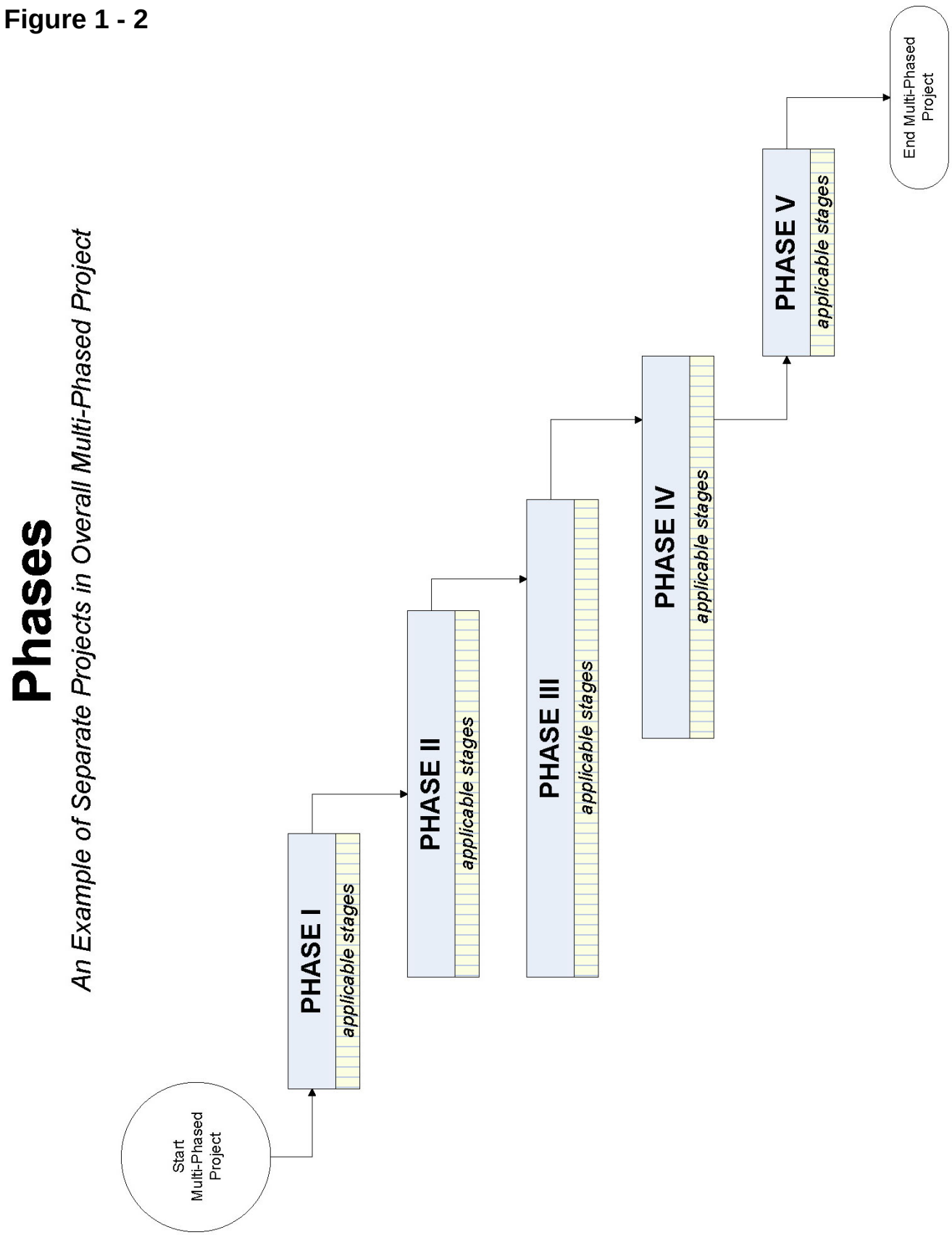

Project Stages
For Commercial off-the-Shelf (COTS) and Development Projects
Start Project
Business Justification
Stage Control Point
No Go
Technology Investment Request Approval
Initiation
Scope Definition(s) Acceptance
Definition & Analysis
Processes, Requirements, & Configuration Sign off
Solicitation & Contracting
Contract Award
Pre-Implementation
-- Analysis
-- Design
Final Requirements & Design Acceptance
Implementation
-- Building & Integration
-- Testing
-- Deployment
Operational & Cultural Acceptance
Closeout
End Project

Figure 1 - 2


Phases
An Example of Separate Projects in Overall Multi-Phased Project
Start Multi-Phased Project
PHASE I
applicable stages
PHASE II
applicable stages
PHASE III
applicable stages
PHASE IV
applicable stages
PHASE V
applicable stages
End Multi-Phased Project

1.8. Project Levels

The State of Nevada categorizes projects based on total cost. There are four project level categories:

- Level I Projects: IT Projects with a total cost greater than or equal to $50,000 and less than $200,000
- Level II Projects: IT Projects with a total cost greater than or equal to $200,000 and less than $500,000
- Level III Projects: IT Projects with a total cost greater than or equal to $500,000 and less than $5 million
- Level IV Projects: IT Projects with a total cost greater than or equal to $5 million

1.8.1. Administrative Adjustments to Project Level

The IT Project Oversight Committee (ITPOC) may elevate a project to a higher category if the project:

- is critical in nature
- has a major impact on a state organization
- is high risk
- has adverse consequences to the State
- impacts multiple geographic areas or users
- is a multi-phased project with combined budgets that exceeds the thresholds indicated.

The ITPOC may also reduce a project to a lower category if the project:

- is low risk
- has a short project duration
- has disproportionately heavy equipment expenditures which skew the actual level of project management effort

1.8.2. Tailoring the Framework to the Project

The Framework applies in varying degrees to all projects. Some projects may have very abbreviated stages or may be able to skip stages. For this reason, a project manager does not need to apply the framework in the same way for every project. A level I project will generally require less project management than a Level III or Level IV project.

Figure 1-3 is a matrix that contains general guidelines for project deliverables by the different project levels. . Further guidance concerning project deliverables is available from the DoIT Project Oversight Unit.

Figure 1 - 3

Suggested Deliverables for Different Project Levels By Project Stage				
	Level I	**Level II**	**Level III**	**Level IV**
Stakeholder Management				
Stakeholder Identification Matrix	x	x	x	x
Stakeholder Management Plan			x	x
Initiation				
Project (Charter) Scope Document		x	x	x
Preliminary Project Acceptance Criteria			x	x
Preliminary Integrated Project Plan	x	x	x	x
Risk Management Plan	x	x	x	x
Quality Goals		x	x	x
Cost Estimates	x	x	x	x
Schedule Estimates	x	x	x	x
Communication Plan		x	x	x
Team Configuration			x	x
Quality Assurance Plan		x	x	x
Resource and Staffing management plan		x	x	x
Procurement Management Plan			x	x
Project Processes			x	x
Issues Management Plan		x	x	x
Definition & Analysis				
Final Documented Business Processes			x	x
Requirements	x	x	x	x
Functional Requirements	x	x	x	x
Other Mandatory Business Requirements	x	x	x	x
Integrated Project Plan	x	x	x	x
Detailed Project Schedule	x	x	x	x
Updated subsidiary plans from Initiation Stage	x	x	x	x
Configuration Management Plan		x	x	x
Change Management Processes		x	x	x
Deliverables Acceptance Criteria		x	x	x
Project Acceptance Criteria			x	x
Solicitation & Contracting				
Request for Proposal (RFP)	*	*	*	*
Signed Contract	*	*	*	*
Contract Approved by BOE	*	*	*	*
Pre-Implementation				
Final Baselined requirements	x	x	x	x
Final Baselined Design Specification	x	x	x	x
Final Baselined Project Schedule	x	x	x	x
Final Baselined Project Acceptance Criteria		x	x	x
Validated Deliverables Acceptance Criteria		x	x	x
Deliverables Management Plan and Schedule		x	x	x
Updated Integrated Project Plan	x	x	x	x
Updated Configuration Management Plans		x	x	x
Master Test Plan		x	x	x
Test Scripts		x	x	x
Cultural Transition Plan			x	x
Operational Transition Plan		x	x	x
Implementation				
Updated Integrated Project Plan	x	x	x	x
Complete Operational System	x	x	x	x
User and Project Manager Sign-Off	x	x	x	x
Trained Users	x	x	x	x
Complete System Documentation	x	x	x	x
Closeout				
Final Integrated Project Plan	x	x	x	x
Lessons Learned Report			x	x
ITPOC Project Closeout Report			x	x
Project Acceptance Criteria Evaluation		x	x	x
Quality Goals Evaluation			x	x
Vendor Performance Evaluation Report			x	x
Contract Closeout Report	*	x	x	x
Archived Project Documentation	x	x	x	x

** Depends on whether deliverable is contract-based*

2. KEY STAKEHOLDERS

2.1. Key Deliverables

- Stakeholder Identification Matrix
- Stakeholder Management Plan

** Key stage deliverables may be abbreviated or expanded depending on the complexity of the project*

*** Details for key deliverables are available from the DoIT Project Oversight Unit*

2.2. Project Stakeholders

Project stakeholders are individuals and organizations that are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or project completion; they may also exert influence over the project and its results.

Project managers and their teams must identify the stakeholders, determine their requirements, and then manage and influence those requirements to ensure a successful project. Project success depends on the involvement, participation, and commitment by the key project stakeholders.

Stakeholders for State of Nevada projects may include:

- The project sponsor – the individual or group within or external to the agency that authorized the project
- Project manager – the individual managing the project
- Committees such as the Project Steering Committee, IT Project Oversight Committee, Security Committee, and Enterprise Architecture Committee
- Project management team – project leads across organizations and functions
- The agency – the organization that will use the product
- Other agencies outside the sponsoring agency
- Other government entities such as Federal, county, and local governments
- Purchasing, DoIT Contract Administration, Department of Administration Project Fiscal Oversight, agency operations, and technical operations
- Executive Branch, Legislative Branch, Constitutional Officers, and entities such as citizen advisory boards

Key stakeholders who provide signoff at each control point are Stage Approval Authorities. The intent of this process is to ensure project issues and risks have not inadvertently been overlooked and that deliverables are as complete as possible.

2.3. Project Steering Committee

The project steering committee is the highest project authority and provides executive management oversight from the business perspective. It is comprised of executive-level stakeholders with a vested interest in the project. The project manager, in conjunction with the project sponsor, will identify these high-level stakeholders and report milestones to them. After the formation of the steering committee, the only role the project manager has in the steering committee is as an attendee and presenter.

2.4. Project Sponsor & Project Manager

The project sponsor is ultimately responsible for the project. The sponsor also lends support and ensures that the necessary resources (financial, staffing, equipments, space, etc.) are available.

The project manager has sole authority and accountability for managing each discrete task. Project managers may have one or more project leads reporting to them, but not others with the title of project manager.

The roles of project sponsor and project manager are separate and are assigned to two different people. Although the project sponsor retains the authority for the project, the project sponsor must delegate the necessary authority to the qualified project manager.

The project sponsor's role includes but is not limited to the following:

- overseeing and assessing the performance of the project
- providing the project manager their full support in managing the project in its entirety
- acting as a member of the steering committee, if appointed

The project sponsor is not:

- involved in daily project management activities
- a member of the project management team
- to act in an "unofficial" project management capacity

The project manager's role is to lead and manage a project on a day-to-day basis. This may include; but is not limited to:

- defining the organizational structure of the project
- defining scope of work and authorizing work
- directing, planning, coordinating, monitoring, and controlling work performed within the project's framework
- ensuring completion of project on time, within cost and to required quality standards
- providing work definition and effective resource management to accomplish the authorized work
- identifying and communicating with the impacted functional organizations and key stakeholders
- defining and implementing project's requirements and processes
- developing all relevant project deliverables,
- developing integrated project schedule and project plans
- facilitating formal project reviews with both the agency staff, management, and key stakeholders
- ensuring that all project management processes relevant to the particular project are followed
- creating and distributing project status reports
- presenting project status to committees, if required
- ensuring that relevant policies, procedures, and standards are applied
- ensuring that applicable Quality Assurance is represented throughout the project lifecycle

3. BUSINESS JUSTIFICATION STAGE

3.1. Key Stage Deliverables

- Approved TIR
- Funded Project Budget

3.2. Overview

The Business Justification Stage is where the IT-related project is conceived and evaluated. Evaluation is based on the needs of the State, the mission of the agency or an external driver. A Technology Investment Request (TIR) is completed to request funding or obtain approval to spend funds. When funds have been obtained, the project moves into the Initiation Stage where a qualified project manager is assigned / hired to manage the project.

3.3. TIR Process

The TIR process is outlined in detail on the Technology Investment Request web page on the DoIT Planning website at http://doit.nv.gov/TIR/index.htm.

Projects that span across two or more biennia require a TIR update when the budgeting process for the new biennium begins; in order for the project to proceed. When the project schedule is created, the project manager must understand the impacts of schedule slippages into the next biennium, as funding may only be authorized for the current biennium.

4. INITIATION STAGE

4.1. Key Stage Deliverables

- Project (Charter) Scope Document
- Preliminary Project Acceptance Criteria
- Preliminary Integrated Project Plan consists of, but is not limited to the following preliminary high-level subsidiary plans *(depending on complexity of project):*
  - Risk Management Plan
  - Quality Goals
  - Cost Estimates
  - Schedule Estimates
  - Communication Plan
  - Team Configuration
  - Quality Assurance Plan
  - Resource and Staffing management plan
  - Procurement Management Plan
  - Project Processes
  - Issues Management Plan

* *Key stage deliverables may be abbreviated or expanded depending on the complexity of the project*

*** Details for key deliverables are available from the DoIT Project Oversight Unit*

4.2. Overview

The project kickoff occurs during the initiation stage. The project manager and other approved staff are assigned and the core project team is formed.

4.3. Preliminary Integrated Project Plan

State project managers must own, develop, and maintain an Integrated Project Plan for all State projects in accordance to the Project Delivery Framework Definition to ensure that project timelines and all other aspects of the project are well defined, coordinated, understood, and executed by both the vendor and State. This requirement also applies to all "deliverable-based" projects.

The vendor's project plan, no matter how elegant, does not substitute for the lack of a comprehensive Integrated Project Plan maintained by the State. The Integrated Project Plan can only be developed and maintained by a qualified project manager who is either a State employee or a consultant who is specifically contracted to perform project management services. The Integrated Project Plan may not be handed off to a vendor or vendor resources to be updated and maintained once it is developed; however, the State project manager may obtain input from the vendor as appropriate. The State project manager, not a vendor, manages the utilization and assignment of State resources and staff.

In the Initiation Stage, the project manager, along with the project team, creates a preliminary Integrated Project Plan. Its content will vary depending upon the organization, application, and level and complexity of the project and will progressively evolve throughout the project. The Integrated Project Plan addresses:

- how work will be executed to accomplish the project objectives
- how changes will be monitored and controlled
- performance measures and how they will be used
- how communication is managed among stakeholders

- how multi-phase projects are managed
- how management is involved to review and assist in resolving key issues and decisions
- how configuration management will be performed
- subsidiary plans required to manage the project *(see Key Stage Deliverables)*

The preliminary project scope document is referenced in the Integrated Project Plan. Since not enough is known about the project during the initiation stage to complete the Integrated Project Plan in detail, the plan progressively evolves as it is reviewed and updated throughout the remaining project stages. Before exiting the Initiation Stage, the preliminary structure of the project team will be more defined.

4.4. Additional Activities

- The Quality Assurance (QA) manager is assigned and a preliminary quality assurance plan (QAP) is developed.

- The project team develops a schedule for the Definition & Analysis and Solicitation & Contracting Stages. If the project requires solicitation, the project manager will advise DoIT Contract Administration of when the project will be ready to begin this process.

5. DEFINITION & ANALYSIS STAGE

5.1. Key Stage Deliverables

- Final Documented Business Processes
- Requirements:
  - Functional Requirements
  - Other Mandatory Business Requirements
- Integrated Project Plan now also includes:
  - Detailed Project Schedule
  - Updated subsidiary plans noted in Initiation Stage
- Configuration Management Plan
  - Change Management Processes
- Deliverables Acceptance Criteria
- Project Acceptance Criteria

* *Key stage deliverables may be abbreviated or expanded depending on the complexity of the project*

*** Details for key deliverables are available from the DoIT Project Oversight Unit*

5.2. Overview

The majority of the pre-contract planning is done in the Definition & Analysis Stage. This planning sets the stage for all future activities and for the future success of the project. The Integrated Project Plan should be updated to reflect the most current information available.

5.3. Project Scope Refinement & Business Processes

The high-level project scope is further developed to describe how the agency will operate once the approved system is implemented and to assess how the system will impact users and constituents. The project team must avoid an organization-centric approach to the project and ensure that stakeholders affected by the project are actively engaged at this point in time. These "outside" stakeholders will actively contribute to the project scope and requirements definition.

The business processes related to the project are defined and documented and the project scope is developed into the project's functional and other mandatory business requirements.

5.4. Requirements

There are two types of requirements (1) functional requirements and (2) other mandatory business requirements. If the development of the software will be done by or purchased from a vendor, the final functional requirements, business processes, and other mandatory business requirements may become part of the Request for Proposal (RFP). If solicitation is intended, external resources required by the project team are identified and contacted.

5.4.1. Functional Requirements

Functional requirements will define the system in detail at the functional level including system inputs, processes, outputs, and interfaces. The system will be described in terms of the functions to be performed, not in terms of computer programs, files, and data streams.

5.4.2. Other Mandatory Business Requirements

Equally important are other mandatory business requirements which are constraints or "givens" that define the non-functional aspects of system that must be adhered to during the Pre-Implementation and Implementation Stages. These may include but are not limited to:

- Warranty and maintenance requirements
- Support and service level requirements
- Computing and project platforms
- Presentation and data requirements
- Processing and reporting requirements
- System security and programming requirements
- Disaster recovery, communication bandwidth, and error control
- On-Line help and system interfaces
- Statutory and/or regulatory requirements
- Funding limitations
- Schedule requirements
- System availability and performance
- Any other constraint that does not fall directly under the business category

5.5. Deliverables Management

If there are vendor deliverables forthcoming at this Definition and Analysis Stage, deliverable acceptance criteria must be solidly defined, understood, and agreed to by both the State and the vendor. Further details are outlined in Section 7.3: Pre-Implementation Stage, Deliverables Management.

5.6. Configuration Management

The configuration management plan is developed to include the change management or control process, the defect tracking procedure and standards for the project documentation and code.

5.7. Additional Factors

Business processes and project requirements must consider the following:

- Requirements are not tailored toward the selection of a favored vendor
- Federal, state, county, and city agencies that may interface with the system
- Cultural requirements of organization, workplace, and users of the system
- How the system is geographically and organizationally distributed
- Business work flow, business data, and impact of revising existing business processes
- Data conversion requirements from old system to new system
- Federal requirements, NRS, Policies, Standards, and Procedures, and agency mandates
- Anticipated demands on hosting services and operations
- Identification of system security requirements for Security Certification
- Completion of a high-level vulnerability assessment

It is possible that many of these considerations may not be well defined or are unknown at the end of this stage. They must defined by the end of the Pre-Implementation stage.

6. SOLICITATION & CONTRACTING STAGE

6.1. Key Stage Deliverables

- Request for Proposal (RFP)
- Signed Vendor Contract
- Contract Approved by Nevada Board of Examiners (BOE)

6.2. Overview

This stage addresses a subset of the overall procurement management process known as the Request for Proposal (RFP) Process. It outlines the processes for an agency to purchase or acquire the expertise, products, services, or results needed from outside the project team to perform the work. Three things are accomplished in this stage:

- The solicitation document is developed and issued
- The vendor is selected
- A contract is negotiated and awarded

6.3. Solicitation Roles

The DoIT Contract Administration Unit or the Department of Administration, Purchasing Division manages contracts issued by an agency acquiring products or services from a vendor, and administers contractual obligations placed on the project team and vendor(s) by the contract.

6.4. Schedule & Staffing Planning

During schedule development and resource planning, project managers must factor in time frames for the RFP solicitation cycle and obtaining contractor resources for an RFP. The DoIT Contract Administration Unit / Department of Administration, Purchasing Division requires a minimum of 60 calendar days notice to enter the RFP into their service queue. Thereafter, the typical RFP solicitation cycle averages 6 calendar months in duration.

For contractor services, a Request for Service (RFS) may require between 4 days and 2 weeks prior to authorizing contractors to submit resumes to an agency for review and candidate selection. Depending on the agency, additional time may be required for resume review, interviews, security checks, reference checks, orientation, and new hire/contractor learning curves.

6.5. Participation

At a minimum, the RFP development will require the participation of the project manager, agency subject matter experts, agency technical staff, stakeholders, and users.

The Solicitation & Contracting Stage-Gate Review will be jointly organized, planned, and co-led by the Contract Administration Unit or the Purchasing Division representative and the project manager.

7. PRE-IMPLEMENTATION STAGE

7.1. Key Stage Deliverables

- Final Baselined Requirements
- Final Baselined Design Specification
- Final Baselined Project Schedule
- Final Baselined Project Acceptance Criteria
- Validated Deliverables Acceptance Criteria
- Deliverables Management Plan and Schedule
- Updated Integrated Project Plan
- Updated Configuration Management Plans
- Master Test Plan
- Test Scripts
- Cultural Transition Plan
- Operational Transition Plan

* *Key stage deliverables may be abbreviated or expanded depending on the complexity of the project*

*** Details for key deliverables are available from the DoIT Project Oversight Unit*

7.2. Overview

The Pre-Implementation Stage begins when the vendor is fully engaged and begins to perform billable work. The primary activities of the Pre-Implementation Stage are pre-implementation analysis and design. The end products of this stage are the final baselined *(i.e. approved locked down)* requirements and the final approved integrated design documents. The Integrated Project Plan should be updated to reflect the most current information available.

7.3. Deliverables Management

Only after functional requirements, design specifications, schedules, and deliverable acceptance criteria are solidly defined, understood, agreed to by the State and the vendor will effective deliverable management during the Pre-Implementation and Implementation Stages be possible.

Deliverables management includes the process of documenting, tracking, reviewing, quality verification, acceptance, and payment of vendor deliverables by the project manager. The Deliverables Management Plan and Schedule is maintained by the project manager and is used to provide project stakeholders with deliverables status. In the context of this Framework, deliverables management by the project manager is not the same as deliverables management by any contract administration or purchasing entity.

The following are high-level expectations pertaining to deliverables management practices:

- All vendor deliverables are thoroughly tracked, reviewed, undergo quality assurance (QA) in relation to the requirements, deliverables acceptance criteria, and signoff prior to any payments being made.
- In multi-phased projects, no payment is made in later phases for the same deliverables that had been paid for in earlier phases. Deliverables paid for in earlier phases that have been modified for delivery in later phases would receive payment for only the "value added" difference.
- No deliverable is paid for in advance of deliverable review and signoff in accordance with the deliverable acceptance criteria.
- Deliverable acceptance criteria cannot be waived or modified by the project manager without written agreement from the stakeholders and written input from any project assigned quality assurance (QA) resources. This may require an impact assessment depending on the complexity of the project.

7.4. Approach for Commercial of-the-Shelf (COTS) Systems

A conspicuous difference or disparity between what a vendor solution offers and what a system actually requires is considered to be a "gap". A gap analysis is accomplished by conducting Pre-Implementation Work Sessions with participating subject matter expects from both the State and vendor side.

The objective of a gap analysis to:

- identify and document the differences between the selected COTS system and the requirements of the State
- negotiate an agreed-to solution or resolution to the findings
- finalize design requirements and assess impact to functional requirements
- submit gap report, finalized requirements, and final system design for sign off at the appropriate level of management.

The vendor and State must perform the Pre-Implementation Work Sessions to identify any modifications needed to the COTS system resulting, to some degree, in an internal development, or change effort on the State or vendor side.

7.4.1. Pre-Implementation Work Session Activities

Pre-Implementation Work Session Gap Analysis activities include:

- identifying and gathering subject matter experts to perform the gap analysis
- validating existing requirements defined by the State
- identifying gaps in COTS and State functions
- identifying eliminated COTS and State functions
- identifying functions to be included in future implementations
- identify missing elements required in standards mandated by key stakeholder organizations
- identifying implementation work that has already been performed
- classifing gaps as those that should be developed, and those that should be procured
- creating a gap matrix to document "gapped items"
- assessing compliance to standards mandated by key stakeholder organizations
- determining if resources are adequate to complete the implementation of the project
- identifying training needs
- defining best implementation strategy
- assessing the adequacy and completeness of records and documented procedures
- setting key stakeholder expectations and communicating them to the project team

7.4.2. Pre-Implementation Work Session Duration

The duration of the Gap Analysis depends upon the size of the organization, geographical factors, organizational complexity and the required level of detail. Generally speaking, the process will vary depending on the depth of analysis required. The finalized project schedule will be determined after Pre-Implementation Work Sessions have been completed and the baseline schedule has been approved.

7.4.3. Unaltered or Unchanged COTS Systems

In theory for an unaltered or unchanged COTS system that meets all requirements, a gap analysis would reveal that there are no modifications needed and the design document is for all practical purposes complete. While this may be true for the vendor side, the State has to document and agree to how the COTS system interfaces with the State's technology infrastructure and resources. Even with no changes in the vendor's COTS product, the State may encounter changes it has to make to install, design, build, and test on its own by one or more agencies, which may impact the vendor as well.

7.4.4. Critical Considerations

Design and configuration planning must consider or reconsider the following:

- Interfaces with other federal, state, county, and city agencies and their stakeholders
- Requirements of hosting, operations, production support, and maintenance
- Cultural requirements of the organization, workplace, and users of the system
- How the COTS system is geographically and organizationally distributed
- Impacts of the COTS system on business work flow, business processes, and business data
- Data conversion requirements from old system to new system
- Number of hosting servers and compatibility of server space with new equipment at a computing facility
- Approach to training State staff on COTS system and other stakeholders, such as citizens or other agencies if the processes will be changing
- Impact of NRS, Federal requirements, Policies, Standards, and Procedures, and agency mandates
- Any revisions in number of or qualifications of State staff required to accommodate demands of implementation

Any of the above items can cause unanticipated modifications and exponential cost to the COTS system, critically impact the project budget, or make unanticipated demands on State resources and infrastructure. These items also maybe unknowns during the project's Definition and Analysis stages, but must be defined by the end of this Stage.

7.5. Approach for State Developed Systems

For a State internal development effort with limited or no vendor involvement, the pre-implementation stage is an extension of the Definition & Analysis Stage. The functional requirements are analyzed and transformed into complete, detailed specifications for the system to guide the work of the implementation stage. The decisions made in this stage address, in detail, how the system will meet the defined functional, physical, interface, and data requirements. This includes how the system is integrated, tested, and deployed. Design and configuration planning efforts must consider critical influences outside the immediate project or organization.

7.5.1. Critical Considerations

When performing a State internal development effort, the following need to be considered. Many of these are the same considerations as outlined in Section ***7.3.4*** *Critical Considerations.* However, more emphasis should be placed on peer and user review of project deliverables.

- Performance of peer reviews and user reviews of requirements and design specifications
- Review of test scripts by end users and development staff
- Operational support documentation written for internal support staff
- Interfaces with other federal, state, county, and city agencies and their stakeholders
- Requirements of hosting, operations, production support, and maintenance
- Cultural requirements of the organization, workplace, and users of the system
- How the in-house developed system is geographically and organizationally distributed
- Impacts of the new in-house developed system on business work flow, business processes, and business data
- Data conversion requirements from the old system to new system
- Number of hosting servers and compatibility of server space with new equipment at a computing facility
- Approach to training State staff on the new in-house developed system
- Impact of NRS, Federal requirements, Policies, Standards, and Procedures, and agency mandates
- Any revisions in number of or qualifications of State staff required to accommodate demands of implementation

7.6. Additional Activities

- The Master Test Plan is created and the writing of the test scripts begins. The test scripts are written based on the final (baselined requirements) created in this stage.
- The Integrated Project Plan and Configuration Management Plans are updated.
- The final schedule is created that will take the team through the end of the project.

7.7. Cultural Transition Planning

Cultural Transition Planning ensures that any negative impact to the organization's culture is minimized and that the existing culture is ready to accept the system being deployed. This is accomplished through user training, addressing fears, participation in testing, minimization of disruption, good relationship building, team building, and any other approaches to assist people through the change.

If effectively managed, cultural transition can facilitate the "buy in" by users and agency staff to maximize the use of existing skills, knowledge, sensitivities, mindsets, and experience that people have developed over the years. If cultural planning is ignored or mismanaged, cultural resistance can be the single overriding factor in project failure. The Cultural Transition Plan may be addressed in an aggregate that is comprised of other relevant plans defined and developed by the project team.

7.8. Operational Transition Planning

Operational Transition Planning ensures that any negative impact to operations support structure is minimized and that production support personnel are ready to maintain and service the system being deployed. This also includes addressing the needs of the Help Desk personnel. Ensuring that operational production, support personnel, and organizations have what they need with the appropriate advanced notice will increase the likelihood of a successful transition without disruption to overall user service. If operational transition planning is ignored or mismanaged, project implementation and deployment can be significantly delayed resulting in increased cost, rework, and misunderstandings. A key vendor contact should be established for any on-going vendor provided support, with appropriate service level agreements and escalation procedures. The Operational Transition Plan may be addressed in an aggregate that is comprised of other relevant plans defined and developed by the project team.

8. IMPLEMENTATION STAGE

8.1. Key Stage Deliverables

- Updated Integrated Project Plan
- Complete Operational System
- User and Project Manager Sign-off
- Trained Users
- Complete System Documentation

** Key stage deliverables may be abbreviated or expanded depending on the complexity of the project*

*** Details for key deliverables are available from the DoIT Project Oversight Unit*

8.2. Overview

The Implementation Stage begins when the final design document has been completed and approved. The design document needs to include not only the design of the vendor system, but also how it interfaces with the State's technology infrastructure and resources. The Implementation Stage is comprised of three sub-stages: Build, Test, and Deploy. These three sub-phases are often iterative within the implementation stage. This stage is complete when operational acceptance testing is signed off. The Integrated Project Plan should be updated to reflect the most current information available.

8.3. Building and Integration Sub-Stage

Whether a COTS or internal development effort, the objective of the Building and Integration Sub-Stage is to transform the final approved design into an actual working product or system. If not already performed, the hardware, software, network, communications environment, and components for the system/product are put in place at this point and integrated.

8.4. Testing Sub-Stage

The objective of the Testing Sub-Stage is to ensure the system/product satisfies the functional requirements and the final approved design. Key activities include:

- Final Approval of the Test Scripts
- Establishing the Test Environment
- Conducting and performing:
  - Integration Tests
  - Regression Testing
  - Subsystem, System, and Network Testing
  - Security Testing
  - Performance Testing
  - User Acceptance Testing
  - Operational Readiness Testing
  - Tracking and reporting on defects and defect trends.

*** Details for key activities are available from the DoIT Project Oversight Unit*

The integration tests will be executed and evaluated by the development team to prove that the program components integrate properly into the subsystems and network elements and that the subsystems integrate properly into an application. Regression testing may or may not apply depending on whether the system is new or an upgrade to an existing system. The testing team conducts and evaluates system tests to ensure the developed system meets all technical requirements, including performance requirements. The testing team and

the designated IT security resource conduct security tests to validate that the access and data security requirements are met. Users participate in acceptance testing to confirm that the developed system meets all user requirements as stated in the requirements. User acceptance testing will be done in a simulated "real" user environment with the users using simulated or real target platforms and infrastructures.

8.5. Deployment Sub-Stage

One objective of the Deployment Sub-Stage is to install the system or system modifications and make them operational in a production environment. The sub-stage is initiated after the system has been tested and accepted by the user community and the project manager. Activities in this sub-stage include notification of deployment to end users, execution of the previously defined training plan, data entry or conversion, creation of a launch orchestration plan, and post deployment review. This sub-stage continues until the system is operating in production in accordance with the defined user requirements.

Another equally critical objective of the Deployment Sub-Stage is to ensure that operational and cultural knowledge transfer has been completed. This means that operational staff is provided all production-related documentation, procedures, templates, scripts, and anything else needed to maintain the system. Users have been provided with the required training and help desk capabilities are in place to service future issues and requests. Vendors will be available for a period of time to answer questions, provide patches, or assist staff with issue resolution.

An Implementation Stage Review and Approval Certification will be signed off by the project manager to verify the acceptance of the delivered system by the system users/owner.

9. CLOSEOUT STAGE

9.1. Key Stage Deliverables

- Final Integrated Project Plan
- Lessons Learned Report
- ITPOC Project Closeout Report
- Project Acceptance Criteria Evaluation
- Quality Goals Evaluation
- Vendor Performance Evaluation Report
- Contract Closeout Report
- Archived Project Documentation

* *Key stage deliverables may be abbreviated or expanded depending on the complexity of the project*

*** Details for key deliverables are available from the DoIT Project Oversight Unit*

9.2. Overview

In this stage, the project will be transferred to ongoing support, officially ended and the project management team will be dissolved. Project results are evaluated in comparison with the TIR, quality goals, approved funding, original and amended project scope statements and functional and contract requirements. The Final Integrated Project Plan provides the historical experiences of the project from planning, executing, and controlling perspectives. If available, the project manager will assist the project sponsor and agency in performing this analysis. The completed analysis will be used by the agency to not only evaluate project successes and failures but as consideration for approaches to future projects.

All development resources and documentation will be transferred to a library or the operations and maintenance staff. In most cases, the RFP is written to take the contract through a warranty period with on-site staff from the contractor.

9.3. Post-Implementation & Out-of-Scope Requirements

There is no such thing as a post-implementation project for requirements that did not make it into project implementation. Those project requirements designated as out-of-scope are not implemented at project closeout nor are they managed as a post-implementation endeavor. Previous out-of-scope requirements serve as inputs to another separate project or another phase and are managed through the stages of that project.

9.4. Project Closeout Checklist

- Payment of Holdbacks, if applicable
- Return of Performance Bond, if applicable
- Obtaining Federal Operations Approval, if required
- Post-Deployment Review
- Obtaining Final Acceptance
- Document Archival Request
- Federal Certification of System, if applicable

10. GLOSSARY OF TERMS

Acceptance Test - Formal testing conducted to determine whether or not a system satisfies its acceptance criteria and to enable the agency to determine whether or not to accept the system.

Agency – A State organization that specifies the requirements for and formally accepts delivery of a new or modified system; one who pays for the system. The Agency is usually the user.

Application - A system providing a set of services to solve some specific user problem.

Baseline - A line serving as an approved basis for measurement or calculation to compare against future changes in the project. This typically takes place when a set of expectations, budgets, tasks, schedules and/or requirements (business or technical) are locked down, approved, and become the basis for future endeavors.

BOE – Nevada Board of Examiners.

Business Requirement - A requirement that specifies a function (activity or behavior, based on an agency's functional requirement and constraints) that the system (or system component) must be capable of performing. This may be described by associated business processes and workflows.

Certification - Comprehensive analysis of the technical and non-technical security features and other safeguards of a system to establish the extent to which a particular system meets a set of specified security requirements.

Change Control (also Change Control Process) - In project scope and change management, the process by which a change is proposed, evaluated, approved (or disapproved), scheduled, and tracked after business, functional, and technical requirements have been locked down. This process does not have to be laborious. The Change Control Process is meant to be as simple as possible depending on the impact the change has to the project and to ensure a system, product, service, or outcome is only modified in line with the identified necessary change.

Component - General term for a part or piece of a system project.

Configuration - The way in which a system is set up, connected, and/or the set of constituent components, such as memory, hard disks, networks, monitors, and an operating system, that make up the system.

Configuration Management – The discipline of applying technical and administrative controls, such as: identifying, recording, reporting, and tracking the construct, change, and evolution of a system.

Conversion - The process of converting (or exchanging) data from an existing system to another hardware or software environment.

COTS - Commercial Off-The-Shelf.

Criteria - A standard on which a decision or judgment may be based; for example, acceptance criteria to determine whether or not to accept a system.

Cultural Transition Plan – Over the years, people in an organization accumulate skills, knowledge, sensitivities, mindsets, attitudes, and routines that can be negatively disrupted by change. The Cultural Transition Plan is a plan to ensure that the negative impact to the culture is minimized and that the culture is ready to accept the system being deployed through training, participation in testing, minimization of disruption, good relationship building, team building, and any other approaches to assist people through the change.

Deliverables Acceptance Criteria – A definition in meaningful and measurable terms of what must be done for the final deliverables and product to be acceptable to the customer and staff who will be affected.

Deliverables Management – includes the process of documenting, tracking, reviewing, quality verification, acceptance, and payment of vendor deliverables by the project manager according to established and accepted deliverables acceptance criteria.

Deployment – Moving, switching over, or installing the final operationally ready system into production.

Document - Written and/or graphical information describing, defining, specifying, reporting, or certifying activities, requirements, procedures, reviews, or results. See Product.

Element - A subsystem, component, or unit; software, network, or hardware, as defined by the project.

Gap - A conspicuous difference or disparity between what a vendor solution offers and what the system requires.

Hardware – The physical portion of a system (or subsystem), including the electrical components.

Implementation – In the context of the system, implementation focuses on the sub-stages after contract award which lead up to actual deployment of the operationally ready system.

Internal – Conducted within, coming from, or being within an organization or agency.

Integrated Project Plan – A project document which specifically describes the timelines and activities required to ensure that the project is properly defined, coordinated, understood, and executed between affected Stage agencies and vendors. Its focus is to define what specific commitments, activities and responsibilities need to be performed by State staff and resources during the course of the entire project. A vendor project plan only describes the narrower commitments outlined in their contract – not the whole project.

Integration – Combining software or hardware components or both into an overall system.

Interface - To interact or communicate with another system (or system component). An interface can be software and/or hardware.

Lessons Learned - A formal or informal set of examples collected from experience (for example, experience in system development) to be used as input for future projects to know what went well and what did not; collected to assist other projects. Establishes a history to reference for future project planning.

Library - A configuration controlled repository for system components (for example, documents and software).

Lifecycle - All the steps or stages a project passes through during its system life; from business justification through the end of Investment & Benefits Achievement.

Maintenance - The activities required to keep a software system operational after implementation.

Methodology - the a set of working methods which include organized and documented set of procedures, and guidelines for one or more phases of a project lifecycle, such as the project stages (e.g. project initiation, implementation). Many methodologies include a diagramming notation for documenting the results of the procedure or a step-by-step "cookbook" approach for carrying out the procedure. For Quality Assurance, it would be the set of criteria for determining whether the procedures, processes, and deliveries are of acceptable quality.

Model - A simplified representation or abstraction (for example, of a process, activity, or system) intended to explain its behavior.

Operational Readiness Testing - Testing and verifying the state of preparedness of the new or enhanced system to meet required operational specifications and perform the services for which it is designed.

Operational Transition Plan – This plan will be created during the pre-implementation stage to ensure that operational production, support personnel, and organizations have what they need with the appropriate advanced notice to successfully take over the system or changes to the system.

Organization-Centric – A silo mindset and/or orientation which focuses on the primary organization and its needs and wants with little or no consideration for other critically impacted organizations. Breaking through such silo boundaries is critical for organizational success

Phase – A separate and distinct project in a multi-phased project.

Practice – Something that is and can be performed habitually, repeatedly, or customarily; make a habit of. Comprises an act or process of doing something.

Pre-Implementation Work Session: COTS Pre-Implementation Sessions are analogous to Joint Application Design (JAD) Sessions conducted during an internal development project. The objective of a Pre-Implementation Work Session is to perform a gap analysis between the selected COTS system and the requirements of the state where the finalized requirements are negotiated and agreed to by the State and the vendor.

Procedure - A series of steps (or instructions) required to perform an activity. Defines "how" to perform an activity. (See *Methodology* for comparison)

Process - A finite series of activities as defined by its inputs, outputs, controls (for example, policy and standards), and resources needed to complete the activity. Defines "what" and “in what order” needs to be done.

Product - General term for an item produced as the result of a process; can be a system, subsystem, software, or a document.

Production - A fully documented system, built according to the system, fully tested, with full functionality, fully operationally transitioned, and accompanied by training and training materials.

Project - The complete set of activities associated with all lifecycle stages needed to complete a systems development or maintenance effort from start to finish. Typically a project has its own funding, cost accounting, and delivery schedule. It is a temporary endeavor with a begin and end date.

Project Acceptance Criteria – A definition in meaningful and measurable terms of what must be done for the project to be accepted as a success by the key stakeholders.

Project Delivery Framework – A consistent, statewide methodology or construct by which all projects are managed to realize the desired outcome according to project level, risk, complexity, visibility, and impact to the State.

Project Management - The process of planning, organizing, staffing, directing, and controlling the development and/or maintenance of a system.

Project Plan - A formal document detailing the project scope, activities, schedule, resources, and security issues. The Project Plan is created during the Definition & Analysis Stage and updated through the Implementation Stage.

Project Management Team - A project management team is the team that performs the overall (administrative) management and risk management for a single project.

Project Manager - The person with the overall responsibility and authority for the day-to-day activities associated with a project.

Requirement (see Business Requirement)

Quality - The degree to which a system, component, product, or process meets specified requirements.

Quality Assurance - A discipline used by project management to objectively monitor, control, and gain visibility into the development or maintenance process.

Quality Assurance Plan - A formal plan to ensure that delivered products satisfy contractual agreements, meet or exceed quality standards, and comply with approved systems development or maintenance processes.

Quality Goals - An easily understood statement about how the quality of the project outcome is defined, achieved, measured, and monitored. This statement becomes the basis of the project quality evaluation at project closeout and stakeholder, user, and community acceptance.

Regression Test - In software maintenance, the rerunning of test cases that previously executed correctly in order to detect errors introduced by the maintenance activity.

Requirement - A capability needed by a user; a condition or capability that must be met or possessed by a system (or system component) to satisfy a contract, scope statement, standard, specification, or other formally imposed documents.

Resource - In management, the time, staff, capital and money available to perform a service or build a system, network, or product; also, an asset needed by a process step to be performed.

Review - A formal process at which an activity or product (for example, code, document) is presented for comment and approval; reviews are conducted for different purposes, such as peer reviews, user reviews, management reviews (usually for approval) or done at a specific milestone, such as stage control point and Sub-Stage Checkpoint Reviews (usually to report progress).

Risk - A potential occurrence that would be detrimental to the project; risk is both the likelihood of the occurrence and the consequence of the occurrence.

Role - A defined responsibility (usually task) to be carried out by one or more individuals.

Scope - The established boundary (or extent) of what must be accomplished; during planning, this defines what the project will consist of (and just as important, what the project will not consist of).

Security - The establishment and application of safeguards to protect data, software, and hardware from accidental or malicious modification, destruction, or disclosure.

Security Certification - A formal set of documents showing that the installed security safeguards for a system are adequate and work effectively.

Security Test - A formal test performed on an operational system, based on the results of the security risk assessment in order to evaluate compliance with security and data integrity guidelines, and address security backup, recovery, and audit trails.

Software - Computer programs (code), procedures, documentation, and data pertaining to the operation of a computer system.

Stakeholder Identification Matrix – A deliverable that describes who all the possible stakeholders are and which ones are impacted by the project and how. This matrix should be an input into the project's Communications Plan.

Stakeholder Management Plan - Addresses the roles and responsibilities of impacted stakeholders through all project stages. Updates to this plan are required when roles and responsibilities change from project stage to stage.

Standard - Mandatory requirements to prescribe a disciplined uniform approach to software development and maintenance activities.

System - A collection of components (hardware, network, software, interfaces) organized to accomplish a specific function or set of functions; generally considered to be a self-sufficient item in its intended operational use.

System Security Requirements - A formal document that establishes the processes and procedures for identifying all areas where security could be compromised within the system (or subsystem).

System Test - The process of testing an integrated hardware/software system to verify that the system meets its documented requirements.

Technical - Relating to agreements, conditions, and/or requirements affecting the functionality and operation of a system.

Test - The process of exercising the product to identify differences between expected and actual results and performance. Typically testing is bottom-up: unit test, integration test, system test, and acceptance test.

Test Case - A specific set of test data and associated procedures developed for a particular test.

TIR – Technology Investment Request.

Training - The formal process of depicting, simulating, or portraying the operational characteristics of a system or system component in order to make someone proficient in its use.

User - An individual or organization who operates or interacts directly with the system; one who uses the services of a system. The user may or may not be the Agency.

User Acceptance Test (a.k.a. **UAT)** - formal testing conducted to determine whether or not a system satisfies its acceptance criteria and to enable the user to determine whether or not to accept the system.

User Training Plan – A plan which describes how, when, where, and which users will obtain the knowledge and skills to successfully use the system as intended.